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EDITORIAL DEPARTMENT NOTE

World War II gave a tremendous impetus to industrial research work. The experience thus gained has been applied to problems of civilian production, and while many of these war-developed wonder products are not yet available for distribution, they are in the experimental stage. They are being adapted for mass production which makes possible mass distribution and the recovery of the costs of research. Dr. Norman A. Shepard, author of the first article, has been the Chemical Director of the American Cyanamid Company since 1941. Prior to that time he was for five years Director of Technical Service for the same Company. From 1919 to 1935 he held various research directorships with the Firestone Tire & Rubber Co. He is a graduate of the Sheffield Scientific School of Yale University where he taught from 1913 to 1919. Since 1942 he has been an advisor and consultant for a number of government organizations. He is a member of many technical organizations and the author of a number of reports and publications discussing research in matters of chemistry and of rubber.

A highly illuminating article by B. W. Roberts explores some little known possibilities of control applied to merit rating plans under state unemployment insurance tax laws. The author shows that the state laws generally provide incentives to employers to reduce their unemployment insurance taxes, but that employers have been remiss in taking full advantage of the statutory provisions.

B. W. Roberts graduated from the College of Business Administration of the University of Nebraska with a major in accounting in 1933 and for the next two years attended the University of Nebraska Law College. He has also taken graduate work in accounting at Northwestern University in Chicago. For approximately two years Mr. Roberts was a Staff Accountant with Arthur Andersen & Company in their Kansas City, Missouri, office. For the next seven and one-half years he was a Staff Accountant with Baird, Kurtz and Dobson, Certified Public Accountants, Kansas City, and Joplin, Missouri. On January 1, 1945, he became Assistant Tax Supervisor with the Tennessee Coal, Iron & Railroad Co., Birmingham, Alabama.

Our final article by James D. Anderson deals with work simplification in connection with a vouchers payable system. The article is interesting not only for its subject matter, but also because it demonstrates clearly how a simple, common-sense approach to a problem can result in work simplification and consequent cost reduction.

Mr. Anderson was brought up in Chicago. He obtained his college education at Northwestern University School of Commerce. He is an Illinois C. P. A., and a member of the American Institute of Accountants and of the Chicago Chapter. Prior to joining the Chicago Flexible Shaft Company in January, 1945, Mr. Anderson worked for George Rossetter & Company, public accountants, as Manager of their Systems Department. Prior to that position, he was associated with E. H. Scull & Company, a management engineering firm.

Articles published in the *Bulletin* present many different viewpoints. In publishing them the Association is not sponsoring the view expressed, but is endeavoring to provide for its members material which will be helpful and stimulating. Constructive comments are welcomed and will be published in the Forum Section of the *Bulletin*.

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INDUSTRIAL RESEARCH AND THE ACCOUNTANT

By Norman A. Shepard, Chemical Director,
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IN an article[1] written about a year ago, the author made a statement to which some members of the accounting profession have taken definite exception. The paper was entitled "How Can We Build Better Teamwork Within Our Research Organizations?" The admonition directed to research executives was: "Avoid encounters of your men with auditors and accountants. Such encounters may totally incapacitate an able-bodied worker for a full week."

At the time this statement was made, it was farthest from my thoughts that I might some day have to justify myself. However, I am really glad of an opportunity, for I feel sure accountants will understand and agree that, in some cases, at least, the statement holds good. I am not going to retract it, as I believe it is the truth. Why is it true? Because the research investigator and the accountant speak different languages. They do not understand each other. One deals with theories, possibilities, abstractions, and even "blue sky," and the other with cold facts—dollars and cents—and plans to steer a course towards sure profits and capital gains. Not that each should not be able to understand the other, as the goals are one and the same—profits—but they just don't. Why? And what can be done about it?

Why should a research man be so impractical in his thinking? Why doesn't he keep his eye on the dollar sign? Doesn't he realize that he and his work are supported by the profits from the use of stockholders' money and that he cannot go on unless, over the years, his research efforts pay out? Many a research man gives all too little thought to these matters, and it is to be regretted. However, believe it or not, he can give too much weight to the practicability of the problem to which he is devoting his efforts. Some of our most remunerative discoveries would never have been made if the investigator had been discouraged by the initial outlook on the cost of the investigation and the probable cost of the product, based

[1] Chemical & Engineering News, May 10, 1945.

on the immediate estimate predictable from small-volume production. Management must see to it that the research program is sound and, through careful market surveys, assure itself that the products of research have a promising and expandable market and that the sales department is geared to sell the product. But the research man must not have his style and enthusiasm cramped by being held too closely to commercial considerations. Many a fruitful field has remained unplowed because some one said: "It can't be done, or if it is done, the research cost will be too great; or the production costs of the product will be so high that the market will be too small to be profitable." Time and again, research has shown how to make a $30 a pound material for $.30 a pound, through a new method of synthesis coupled with volume production. It takes faith, full measure and running over, and vision on the part of management and the accountant to back an extensive research program and budget. Few research directors will contend that more than 10 per cent of their research projects will, on the average, be successful and directly lead to profits. In the early days of a research department, before a backlog of research results is built up, little black ink is evident on the balance sheets. Even an obviously important discovery is a long time coming to fruition. It quite often is a matter of years from the test tube or the drawing board to sizable production and real profits.

It takes breadth of vision and courage to acquiesce in the necessary expenditures for the conduct of an extensive research program. One needs to realize that without research you can expect no new products; no improvements in old and standard products; and no reduction in costs and no real progress. Unfortunately, you cannot lay your money on the line and know that you can get value received and at a scheduled time; you only know that, over a period of years, you will get your money back and more if you will keep pouring money down what may seem to you to be a "rat hole," if you and your management do not falter in continued support of research (no green light-red light, stop and go stuff), and also if you have a well-qualified director of research, with a loyal, well-trained, and adequately remunerated staff of scientists. It takes faith, and plenty of it! But just as sure as day follows night, so will profits eventually wipe out research expenditures and bring handsome returns on the investment.

The Scientist vs. the Accountant

Many of my friends who are directing research tell me that antagonism between scientist and accountant need not be, and does not exist in their organizations. Where we fail to get one it is due, more likely than not, to lack of knowledge of each other. Our directors of budget, as in Cyanamid, can have engineers and chemists on their staff, not only to investigate the soundness of the budget requests and projects, but also to alleviate and explain the shocks to which cost people are subjected by the scientist. And our accounting people should visit the laboratory and find out what research is all about, how the wheels go round, and what makes them go round. Most research people are not so extravagant as you may think; an educational approach, rather than a critical one, would do much to bring our research spendthrifts into line. If both parties in the scientist-accountant feud, if it can be called that, would honestly try to get the other fellow's viewpoint, there soon would be no real misunderstanding. Certainly the research and development man needs desperately what the accountant has to offer in sound advice. One of the ofttimes mistaken beliefs that technical people have concerning the accountant is that, if the latter has the power, he will block expenditures for research. One of the accountant's prime duties is to save money. That is one of his most tangible accomplishments, and no clear-thinking technical man will deny that that is his rightful function. Many cost accountants and budget men believe it sound policy to buck every unusual expenditure on the theory that all research people are extravagant and the only way to bring them to their senses is to say NO right away to every request. It is argued that if the need is really great the research man will fight for the equipment or the additional man power. If it would simply just be "nice" to have these things to expand his department and activities, and his case for them is not too strong, he will subside and give up if sufficient resistance is offered. If the latter situation is the case, the accountant's attitude will have saved the company an unnecessary expenditure. However, this general attitude of the accountant is responsible for the tendency for a research and development man to ask for much more than he really needs, for he suspects that the accounting department will be satisfied only if it succeeds in chopping down the request or appropriation an appreciable percentage; so he asks for more

with the expectancy of getting at least as much as he really needs. This chiselling on the part of the accountant, and avariciousness on the part of the investigator, lead to continual sparring and bad blood. The accountants catch the development men at these tricks so often that they are certain their policy of handling "these birds" is the proper one. These clashes can easily be avoided and should be, for the net result is the same—the researcher eventually gets what he really needs, and what the cost accountant thinks he has saved is a myth. All that has been generated is friction and heat and the loss of the valuable time of both the cost man and the investigator. If the accountant will realize that the best in equipment and testing devices is cheap in the long run, if it saves man power and gives more reliable data, he will not haggle over the expenditure. Man power is the most expensive commodity of research; the equipment and facilities are relatively minor items.

Research and Company Progress

Again, cost accountants, as well as management, often fail to realize the importance of the research man to the progress of the company. They look on him and the research department as expensive luxuries, responsible in no small measure, if the laboratory is a large one, for the high overhead with which the company is burdened. And this is true. But do they realize that without that expenditure the company cannot hope to advance through new product development? Do they properly evaluate the salaries that the company should and can afford to pay for such constructive thinking and discovery? The atomic bomb may, or may not, have won the war, but can anyone view the work of the thousands of scientists who contributed to that largest research project of all time without a feeling of awe and respect for the scientist? The average accountant's attitude toward the scientist's salary is that it is too high already and that regular raises are not justified unless some outstanding discovery has been made. And quite often he attempts to chop the research executive's recommendations for salary increases. The research men know this, or think they do, and resent the raises which come through on the stingy side—perhaps only a shade on that side, but just enough so that the "edge" is taken off the raise and, instead of the increase being a stimulation to greater effort and enthusiasm, it leaves a dead feeling of lack

of appreciation. This is a false economy and leads to unnecessary turnover in a department where continuity of service is vital to success. All this is quite uneconomical and unnecessary and would not be the case if the accountant and the researcher took the trouble to educate each other and tried to cooperate.

These are days when such cooperation is of the greatest importance. We now have a demand for goods almost beyond imagination, and it seems obvious that this demand will continue in the immediate future. With this situation volume of production will be the main goal, with cost and quality of lesser immediate importance. But this situation will be of relatively short duration. With the competitive situation becoming more and more acute, pressure will be put on the laboratory to lower costs and increase the quality of existing products—to the detriment of fundamental research and new products. The keepers of the exchequer and the budget makers should see to it that their laboratories are provided with sufficient funds during these profitable years so that both these activities can be kept in high gear, and so that new products with their higher percentages of profits will be ready when the going gets tough.

Improvement of Old Product Lines

Initially, most research laboratories were started with improvement of old products as the major objective. For some time such laboratories functioned as process-development, trouble-shooting institutions and as technical fire departments rather than as true research laboratories. They helped the production department produce at the lowest cost, and through improving quality and giving technical sales service helped the sales department sell the maximum volume of goods at the highest price.

Gradually these infant research laboratories grew up and began to develop new products and to do real research. Today these new activities are likely to dominate, and soon the old-line products with their relatively low percentage of profits are likely to suffer from neglect—unwarranted neglect. The sales department is likely to become so enthusiastic about some new laboratory development which is still years "in the making," that it neglects existing products in anticipation of the new. This overenthusiasm has to be controlled. In fact, it sometimes is a mistake to let the sales depart-

ment in on some exciting new product which will push out an existing one until the development work is well along. It always should be remembered that the backbone of a company's business is what you already have (the bird in the hand), not what you expect to have.

Planning New Products

In laying out plans for new products, management can well heed Russell Conwell's famous lecture entitled "Acres of Diamonds." It is strange how we so often look over into the other fellow's field in our search for new products—products with which we have no manufacturing experience and "know-how" and no sales organization geared to sell. In the organization with which the author is connected, we endeavor constantly to plow up first the fields we already are cultivating and to work at those lines where we already have a toehold and a preferred position, either in the raw materials or the intermediates or with respect to the patent situation. No more clean-cut example can be given than Cyanamid's initial product—calcium cyanamide—perhaps the first child of limestone, coal, and air. For years the only outlet for this material was, as such, in fertilizers, with a sales value of approximately 3 cents per pound. Research has brought from this material dicyandiamide (12 cents); melamine (30 cents); and a host of derivatives and reaction products, especially the amino resins with almost innumerable outlets and applications.

In other words, the sales value of calcium cyanamide has been enhanced four times in dicyandiamide, and ten times in melamine. And this only tells part of the story, for the actual part of the calcium cyanamide which enters into the "dicy" and melamine is only 30 per cent of its weight, so the actual enhancement figures become 13 and 33 respectively.

Vertical vs. Horizontal Expansion

Example after example could be cited of such logical expansion and development of a company's business by building block on block on the existing foundations. DuPont's synthetic rubber (Neoprene) came from their carbide and acetylene, followed by their nylon; Dow's extensive line of products stemmed from the brines of Michigan (epsom salt, bromine, metallic magnesium, and eventually bromine from sea water for use in ethyl gasoline; Car-

bide's extensive line of new chemicals was developed from petroleum—ethylene glycol (Prestone), ethylene oxide (an important intermediate in making one of the specialty synthetic rubbers). This sort of logical development and expansion of a company's activities is the safe and sound method of growth. Well-planned and executed research with such an objective is almost bound to succeed eventually. Vertical expansion is far less of a gamble than the horizontal, branching off into dissimilar fields. There is danger in our postwar planning of getting far afield, and it is easy to understand why. During the war so many companies so successfully converted their prewar, peacetime activities to what seemed completely irrelevant fields. One example which struck me very forcibly when I visited the plant was that of the Armstrong Cork Company, which turned its linoleum plants to the manufacture of cartridges, shells, and incendiary bombs. The only assets for such production were a sound progressive management and a highly skilled staff of engineers and mechanics, trained in fabricating the intricate specialized machinery of the floor covering industry, plus machine shop facilities and extensive buildings. Hundreds of companies have learned during the war that such transformations can be made successfully, and the author feels that the confidence gained through this abnormal diversification may lead many companies astray in their postwar expansion thinking. Undoubtedly, many companies will be successful in the postwar period in such abnormal expansion, but there is grave doubt that the profits from such lateral undertakings will be as great as they would have been in vertical development. We hear of General Mills entering the electrical appliance field, an already highly competitive one; and Henry Kaiser shifting from boat building to automobile manufacture; and many companies jumping into the manufacture of chemicals from a previous business quite unrelated to chemical manufacture. The story of synthetic resins and the vital part they played in the war is intriguing. Many companies are planning to enter or already have entered this field of manufacture, especially that of moulding and impregnating resins. The fabrication of moulded products from such resins is a vertical and logical activity for a company manufacturing moulded products. But the manufacture of the resins themselves is a lateral and questionable expansion.

Every management and every research department has a grave responsibility in the selection of items for manufacture and in the selection of fields of research. It is far too easy to be attracted and misled by the volume and market already developed by others. It seems to be the safe way to expand a company's business. The market is there, and it is easy to argue that through its own unusual business acumen and outstanding production abilities a company can go out and take the business away from a competitor. And this is going on, even when it is well known that existing manufacturing capacities already are ample or even excessive. Most of the reputable chemical companies have learned that such expansion leads to less profits, and that a similar expenditure of capital and man power on a new product or line in their own field will bring an infinitely greater reward.

Estimating Project Costs

These policy decisions of industry often are formulated without bringing all the mental faculties of management to play. Too often, top management makes decisions without tapping the knowledge and fact-finding capacities of their accounting, market survey, and budget departments, together with the judgment of their technical brains. It is not the job of a few men, but of the combined brains of the organization. Just as no one man, even the most astute research director, is capable of running research single-handed, so too is it impossible to make wise policy decisions without the wisest available advice of the entire organization, especially that of the accounting and technical departments. Let us say, for example, that a project of sizable proportions is under consideration and that it is apparently right up the company's "alley." A rough estimate of the cost of bringing the project to fruition is, say, two million dollars. That is the "guestimate," perhaps of the president and his vice presidential advisors. Now, how can the facts be found with any degree of accuracy? What will the research and development costs be? The best that can be predicted may be several hundred per cent off. The allowance here must be figured very high, with a minimum of wishful thinking permitted to influence it. It should be inclusive of all possible contingencies; it should give the management the ungilded "big bad news." Usually top management underestimates this figure, which might well be in this

hypothetical case $500,000 or 25 per cent of the projected expenditure. If this figure is not made clear to management, it is possible that something will be started that cannot be finished for lack of funds. The engineering department must thoroughly study the project. It, too, has a very difficult job to bring in any reliable figure. Until the laboratory or the design engineers have carried their exploratory work to a certain stage, the equipment costs and capital expenditure for the plan can only be guessed at. And then there is the "induction period," or the "shirt losing" stage, as Kettering expresses it, during which the bugs must be gotten out of the process or the product, and then the market and sales development period during which the new product is introduced to and tested by prospective customers. How long will this be and what will be the costs? When all these factors have been properly evaluated and sufficient leeway included, your original two-million estimate may be three, five, or even ten million. Then the accounting department, budget director and committee, and finance committee have to do some tall thinking. Will the company's financial condition warrant such a total expenditure? Will that sum of money expended on that particular project bring as large a return as some other project? What are the risks involved? Is the market reasonably sure and is the estimate of its size sound? Can a patent picture be carved out so that reasonable protection against immediate competition, even before the research and development expense has been paid off, is assured?

Some companies, and these are the successful ones, take all these steps and precautions before committing themselves to a major project. But many do not. Even in the so-called "best regulated" companies, stupid errors in judgment, or careless pre-study of projects, lead to decisions and tens of thousands of dollars of research and development expense on products that the sales department does not want and cannot sell. Fortunately, research and development work usually is not a total loss even if the original goal is not realized. Some unforeseen result pops up, or information accrues that eventually leads to unexpected products and profits—by-products of the original investigation.

Committee Action

Some companies find a technical coordinating committee, or a new projects committee, a valuable asset in avoiding serious errors

in passing upon new ventures. Such committees acting in a purely advisory capacity, without power or authority, may, if manned by the right talent, offer some insurance against erroneous conclusions. For such a committee to function effectively, its advice must be sound and its "batting average" so good its recommendations will be valued and used. The personnel of the committee is very important and should be seasoned and representative of the various activities of the company. It may well include the research director, a responsible technical production man, an executive from the engineering department, a legal man versed in patent law, and a technical man with broad outside contacts as well as a good overall knowledge of the present activities of the company. While the considerations of such a committee are along technical lines, sales can well be represented by a sales executive if he is broadly trained and thinks along technical lines. The accounting department also may well have a member on this committee. (In most cases with which the author is familiar the cost accountant is consulted, but is not a regular member of the committee. I believe he would be a valuable addition, and his presence would lead to a better understanding between the accounting and technical departments.)

Methods of Distribution

It seems essential to say something about the capital goods manufacturer going into consumer goods and about the wholesaler or manufacturer of intermediates completing the job and vending his goods in finished form to the ultimate consumer. This is a moot question, with proponents as loquacious as the opponents. This question may arise almost monthly in any diversified industry. The wholesaler sees his volume products blended or modified by the retailer and sold to the ultimate consumer in small packages at mark-ups of many hundred per cent. He looks longingly at those "lost" and handsome profits. On the other hand he realizes the danger of competing with his customers, with the resultant bad feeling and loss of wholesale business. Being a research man, the author is not qualified to debate this subject; however, it seems that it is best to "stick to your own knitting" and be very cautious about "straddling the fence" and doing both types of merchandising. These enhanced prices and "profits" of the ultimate consumer manufacturer are swallowed up to a large extent by the cost of

small packaging, advertising, and other sales expenses, so that the net profits to the manufacturer of consumer goods are not so handsome as they look at first glance. I can only say that, in the case of my own corporation, we have been manufacturers of the ingredients of fertilizers for more than 35 years. Yet we have never in all that time entered into the consumer market for mixed, blended, and finished fertilizers, regardless of the high markup of our materials when they appear on the retailer's shelves in small packages under a trade name.

Research and Obsolescence

I would like to include a few words on the importance of keeping a keen eye on obsolescence in these hectic days. Time was when obsolescent equipment and machinery could promptly be discarded and replaced, but it has been a long time since this has been possible. Our plants of necessity today contain much antiquated equipment—both worn out and obsolete—which should be eliminated at the earliest possible opportunity. The wisdom and economy of following this matter closely hardly needs emphasis, and cost accountants surely are only too aware and ready to endorse the necessary expenditures. For many years I have been impressed with the importance of this matter. My first industrial connection was with one of the largest and most successful rubber companies. Having come from a teaching career, I was astounded by the rapidity with which that company threw out tremendously expensive equipment regardless of its age, if new and better machinery had been developed—machinery that would, for example, produce a better automobile tire or save even a very small percentage on the cost of manufacture. Out went the old and in came the new! We well can take this page out of the rubber industry and apply it to our own jobs.

Accounting for Research

There are many other subjects appropriate for discussion when the accountants and development men get together. We research men feel that the accounting systems used in connection with the operation of our laboratories are much too detailed and time-consuming and that they do not give value received for the effort put into them. The charging of each piece of equipment and each ounce of material used in a project requires a great deal of book-

keeping and clerical expense. We need to know what a problem is costing, but an error of a few per cent is not vital. I sometimes think that if materials and equipment were prorated on the basis of salary or man-power expenditure, we would have a sufficiently accurate figure and save a substantial amount of accounting and clerical expense.

Again, there is a great deal of bad feeling, not between the accounting department and the laboratory but with other departments of a company, engendered in charging back research expense to the manufacturing and/or sales or other departments which may benefit from the work. Technical service and experimental work requested by a given department are logically directly chargeable to that department, and this procedure causes no eruptions. But with intangible research charges it is quite a different matter. It seems to me that charging research expense off to the general overhead of a company is the simplest and least disrupting method of handling the matter.

In conclusion I reiterate the desirability of fostering closer relationships with the research and development people by gaining, through actual contact with the laboratories and engineering departments, an intimate knowledge of the personnel and the workings of those departments.

STATE UNEMPLOYMENT INSURANCE TAXES—A CONTROLLABLE ELEMENT OF COST

By B. W. Roberts, Assistant Tax Supervisor, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

PAYROLL taxes, as imposed on employers, consist of two distinct taxes, the first of which is known as the Federal Old Age Benefits tax and the second the Unemployment Insurance tax. In all industries where labor is a major cost, it correspondingly follows that the related payroll taxes imposed on such industries also represent significant elements of cost. In many cases it is the general impression that all payroll taxes imposed on employers represent uncontrollable elements of cost. In the case of the Old Age Benefits tax, this impression is generally true. The tax is at a fixed rate and no merit rating plan is in effect allowing

an employer to take advantage of a reduced rate of tax. However, the rate of Unemployment Insurance tax is not beyond an employer's power to control.

In 44 of the 45 state unemployment compensation laws, including the District of Columbia (the state of New York being the only exception) which provide for reduced rates of tax to employers based on their experience under the respective laws, the measuring stick for the reduced rate of tax is the relationship between the amount of contributions paid into the unemployment compensation fund of the particular state by an employer and the benefits paid from that fund to unemployed workers formerly employed by the employer in question. Under the unemployment compensation law of the State of New York the payment of benefits to an employer's former workers is not a factor in such experience determination; the condition of the state's unemployment compensation fund and the status of the employer's years of liability are the determining factors.

Unemployment insurance, as provided by the Social Security Act, is a combined federal and state program. As is generally known, the purpose of unemployment insurance is to provide an income for involuntarily unemployed workers during their period of unemployment, and in order to achieve this result contributions from employers (and in some states employees also) in the form of taxes are necessary to provide the funds from which benefit payments are made to unemployed workers.

On or after January 1, 1936, every employing unit not specifically exempt and having in its employ 8 or more persons for a minimum of 20 days during each taxable year, each day being in a different calendar week, in employment covered by the Act, is required to pay a federal excise tax based on wages paid. Since January 1, 1938, this tax has been at the rate of 3 per cent. However, for the year 1941 and all calendar years thereafter, employers may credit against this federal tax contributions which they are required to pay and which they actually pay under state unemployment compensation laws, when such state unemployment compensation laws are approved by the Social Security Board. This credit is limited to 90 per cent of the federal tax which, for all practical purposes, means that contributions paid under state unemployment compensation laws up to a maximum of 2.7 per cent

may be deducted in their entirety from the federal tax of 3 per cent. Therefore, the net effect is that the federal tax is at the rate of 3 per cent—3 per cent less 2.7 per cent.

Attention is called to the fact that the unemployment compensation laws of some states provide for accelerated rates of tax during periods of abnormally high employment—rates exceeding 2.7 per cent. In such states where employers may be required to pay state unemployment tax at rates exceeding 2.7 per cent, they are allowed to credit against their federal tax of 3 per cent such state taxes computed at the rate of 2.7 per cent. Under these circumstances an employer's over-all unemployment insurance tax expense may exceed 3 per cent. The states of Arizona, Colorado, Delaware, Illinois, Iowa, Minnesota, Missouri, Nevada, New Jersey, New Mexico, Ohio, South Carolina, Tennessee, Wisconsin, and Wyoming have such a provision in their laws.

In addition to the normal credit against the federal unemployment insurance tax, that is, unemployment insurance taxes paid under the various state laws, the federal law provides for an additional credit to employers who have been rewarded with reduced rates of tax under the experience rating provisions of the various state laws. This additional credit is the difference between the amount of state unemployment insurance tax computed at a 2.7 per cent rate and the tax the employer is actually required to pay under the state law.

Under the unemployment compensation laws of the District of Columbia and all but five of the 48 states, employers with favorable experience records under the respective state laws are entitled to reduced rates of tax, rates of less than 2.7 per cent, based on such experience records. The five states having no plan for reduced rates based on experience records are Mississippi, Montana, Rhode Island, Utah, and Washington. In all but one of the state laws providing for reduced rates of tax (New York being the one exception), the measuring stick for the reduced rate of tax is the relationship between the amount of contributions paid into the unemployment compensation fund of the particular state and the unemployment benefits paid from the state fund to unemployed workers formerly employed by an employer paying contributions into the state fund. Under the New York plan the payment of unemployment benefits to an employer's former work-

ers is not a factor in such experience determination; the condition of the state unemployment compensation fund and the stability of an employer's annual and quarterly payrolls and his years of liability under the law are the determining factors.

Merit Rating Under State Unemployment Compensation Plans

The manner in which the various states handle their unemployment compensation funds may be classified as follows:

1. Pooled fund.
2. Individual employer reserve fund.
3. A combination of the pooled fund and the individual employer reserve fund.

Pooled Fund—In the case of states with pooled funds, all unemployment insurance tax payments to that state fund are pooled and all benefit payments to eligible workers, without regard to the amount of tax payments made into the fund by particular employers or without regard to the particular employer by whom the individuals receiving the benefits were previously employed. Therefore, employers in industries where the unemployment hazard is small, to a certain extent, carry the burden of industries where the unemployment hazard is extensive. Labor interests advocate this type of fund because all eligible employees will receive benefits as long as the entire fund of the state is solvent.

The unemployment compensation laws of the states providing for experience or merit rating whose funds are "pooled funds" provide further that separate records be kept of the amounts paid into the fund by each employer and the amounts chargeable to his account when unemployment benefits are paid to his former employees. This additional information is the basis for determining the employer's merit rating. The plan has the advantage of permitting the payment of benefits to eligible employees regardless of the status of the individual employer's account and at the same time affords a means of measuring the comparative effect of each employer's experience record with the over-all record of the fund. Thirty-seven of the state laws and the law of the District of Columbia providing for reduced rates of employer tax payments resulting from application of experience rating provide for pooled funds. The states having other types of funds are indicated in the following paragraphs.

Individual Employer Reserve Fund—Under this type of fund a separate account is maintained for each employer. Benefits payable to each employer's former employees are payable from the tax paid into the fund by the particular employer. However, all of the state laws which provide for an "individual employer reserve fund" have a further provision for a pooled fund to some extent from which benefits can generally be paid if the individual employer account is exhausted or overdrawn. These auxiliary pooled funds are supplied with income from interest earned on the investment of the money in the state fund and by miscellaneous other revenue. The dividing line is further blurred by the fact that all state laws providing for individual employer reserve funds also provide for a part of the employer contributions to be allocated to the pooled fund in emergency situations. The state laws of Kentucky, Nebraska, South Dakota, and Wisconsin provide for this type of fund.

Combined Pooled and Reserve Fund—In states having this type of fund, separate accounts are set up for each employer in the same manner as under the employer reserve type fund, but in addition pooled funds are maintained to which is apportioned a percentage of each employer's tax payment. Benefits payable to eligible unemployed workers are chargeable to former employers' individual accounts as long as such accounts maintain favorable balances. When these balances are exhausted, benefits are payable from a pooled fund. The laws of only two states, Indiana and North Carolina, provide for combined pooled and reserve funds.

Types of Experience or Merit Rating Plans in Operation -

All merit rating states, with the exception of Nevada, have what is known as "automatic" plans; that is, the state laws prescribe a definite method or formula for classifying employers and for applying rating variations or credit according to the measure of experience used. The Nevada law requires classification on the basis of payrolls, contributions, and benefit experience to which fixed rates varying from 1 per cent to 4.5 per cent are applied, but the law leaves the method or formula for rating employers to the discretion of the administrative authorities. As stated above, the New York experience rating plan differs from the plans adopted in the other experience or merit rating states. New York's

plan is a type that cannot be summarized easily and since it does not provide for the benefit factor as a measure for experience rating, it is not considered necessary to discuss the plan in this paper. The plans of the District of Columbia and the remaining 41 merit rating states fall within one of the following four general classifications:

1. Reserve Ratio Formula.
2. Benefit Wage Ratio Formula.
3. Benefit Ratio Formula.
4. Compensable Separations Formula.

For the purpose of those readers who are interested in considering only the plans in operation in the particular states of interest to them, the following table is presented:

Reserve Ratio		*Benefit Wage Ratio*	*Benefit Ratio*	*Compensable Separations*
Arizona	New Jersey	Alabama	Florida	Connecticut
Arkansas	New Mexico	Delaware	Maryland	
California	North Carolina	Illinois	Michigan	
Colorado	North Dakota	Massachusetts	Minnesota	
District of Columbia	Ohio	Oklahoma	Vermont	
Georgia	Oregon	Pennsylvania	Wyoming	
Idaho	South Carolina	Texas		
Indiana	South Dakota	Virginia		
Iowa	Tennessee			
Kansas	West Virginia			
Kentucky	Wisconsin			
Louisiana				
Maine				
Missouri				
Nebraska				
New Hampshire				

The four general types of plans have the following common requirements, although the method of accomplishing these steps vary according to the type of plan adopted:

1. Calculation of each employer's measure of experience.
2. Assignment of rates according to such experience.
3. Keeping separate accounts of all employers.

Reserve Ratio Formula—In general, under this plan each employer's contributions to the state fund for all past years are credited to his individual account, and all benefits paid to his former employees are deducted from these contributions. The balance is then divided by the employer's annual taxable payroll over the last three or five years, and the result obtained is the "reserve ratio." In some states the employer's account is divided by the last year's annual payroll in arriving at the "reserve ratio." Specified rates as written into the laws of the "reserve ratio" states are assigned to employers based on their "reserve ratio." For example, under the Indiana law it is provided that if an employer's reserve account is five times the largest amount of benefits paid from his account during the three preceding calendar years, his contribution rate shall be determined as follows:

1. 1.7 per cent, if the balance in his reserve account equals or exceeds 2.5 per cent, but is less than 3 per cent of his payroll for the preceding three calendar years.
2. .7 per cent, if the balance in the reserve account equals or exceeds 3 per cent, but is less than 3.5 per cent of his payroll for the preceding three calendar years.
3. .135 per cent, if the balance in his reserve account equals or exceeds 3.5 per cent of his payroll for the preceding three calendar years.

The Indiana law also includes the provision that if, after December 1, 1944, benefits paid from an employer's account exceed his total contributions, that employer's rate will be 3.7 per cent. Other "reserve ratio" states have a formula similar to that used in Indiana, but rate scales vary from state to state. Wisconsin, for example, has no minimum rate but does have a maximum rate of 4 per cent. The New Hampshire law provides yearly for a general over-all state rate which it is determined will yield the estimated amount of benefits to be paid out in the coming year. The over-all state rate is then considered a mean, and individual employers' rates may be either above or below the state rate based on their own "reserve ratios."

Under the "reserve ratio" plan there is the question of charging benefits paid to workers who have had more than one former employer who has paid contributions into the state fund. There is a

wide variation among these states as to how such charges are made. Some states charge only the last employer, others charge the last two employers on a proportioned basis, while others charge employers within the claimant's base period (which is determined by the particular state law) on an individual or proportioned basis.

Because the manner of crediting contributions, the manner of charging benefits, the range of merit rates, and other phases of the "reserve ratio" system vary so greatly from state to state, it is suggested that the reader study carefully the laws of the state in which he is particularly interested.

Benefit Wage Ratio Formula—There are only minor differences between the laws of the states operating under this plan. All such laws provide for what is known as "benefit wages," which may be defined as the base period earnings of an employer's former employees who receive benefits. For example, in the State of Alabama a claimant's base period is the first four of the last five completed calendar quarters immediately preceding the quarter in which he files his initial claim for benefits, and his benefit wages would be the taxable wages he received during this period.

The laws of the states applying the "benefit wage ratio" formula provide for carrying account records with employers subject to the law. Contributions paid by employers are credited to their individual accounts, and benefit wages of former employees receiving benefits are charged to their accounts. In some states benefit wages are charged to the employer when a claimant receives his first benefit check; in others, the benefit wage charges are not made until the claimant receives his second benefit check. When unemployed workers in "benefit wage ratio" states receive benefits and benefit wages are chargeable to former employers, each former employer is charged with the amount of taxable wages paid to the claimant during his base period, although none of these employers may have been the claimant's last employer prior to the time he received benefits.

When rates are computed, the total amount of benefit wage charges to each employer during his last three years is divided by the total amount of taxable payrolls on which he has paid contributions during the same period. The percentage obtained is known as the "benefit wage percentage" in some states and "employer experience percentage" in other states. The "benefit wage per-

centage" becomes one of the factors in the employer's rate determination. The other factor is known as the "state factor" and is determined over the same three-year period.

The "state factor" is the percentage obtained by dividing the total amount of benefit wage charges to all employees in the state during the three-year period into the total amount of benefits paid from the state fund during the same period. In the State of Alabama the division is made into what is known as the "amount required for the fund," which is the amount of benefits paid less interest earned on the investment of state funds. In Alabama, which is also probably true in some of the other states, such "amounts required for fund" have for the last five or six quarters been a red figure, because the earnings from investment of state funds have exceeded benefits paid.

All states which have adopted the "benefit wage ratio" formula have a statutory rate table for merit or experience rating purposes. Such rate tables provide for the various state experience factors in the first column, and then from the remaining columns on the table each employer's "benefit wage ratio" can be determined on the horizontal line with the effective state factor. At the bottom of each of these columns appears the applicable contribution rates for each employer, dependent upon the column in which his "benefit wage ratio" percentage appears.

Individual variations in rate tables in use, when benefit wages are chargeable to employers, etc., are factors varying from state to state. Therefore, the reader should consult the law of the particular state in which he is interested for complete details of the plan in operation.

Benefit Ratio Formula—All state laws applying this formula provide for obtaining a factor for each employer which is known as a "benefit ratio." The factor is a percentage obtained by dividing the benefits charged to an employer during a 36-month period and his taxable wages for a period of comparable length. In some states the measuring period is on a calendar year basis and in other states on a fiscal year basis. Also some of the states provide for determining the divisor and dividend of the factor over the same period, while others have varying periods for the two parts of the factor.

The method of measuring the individual employers' "benefit

ratio" differs somewhat in the six states. In Maryland, Michigan, and Vermont, specified rate brackets are incorporated into the state laws as a means of determining each employer's contribution rate based on his "benefit ratio." Florida, Minnesota, and Wyoming determine the relative standing of each employer by arraying all payrolls according to the size of the "benefit ratio," dividing this array into different categories and assigning rates to each category based on a table included in the law.

As under the "reserve ratio" formula there is the problem of charging benefits to former employees where a claimant had more than one employer prior to his period of unemployment. All "benefit ratio" states provide for charging benefits only to a claimant's base period employers, but here, too, there is the problem of the claimant who had more than one employer in his base period. Some states prorate the charge between the base period employers, while others charge the total amount of benefits paid to the last base period employer. Here, too, the laws of the particular state concerned should be studied for details of the exact plans in operation.

Compensable Separation Formula—This formula is used only in Connecticut and under the plan each employer's taxable payrolls for the last three years are divided by the sum of the total unemployment benefit rates of separated employees for the same period. A separated employee is a claimant receiving one or more benefit checks. Only one "compensable separation" and, therefore, only one benefit rate may be charged to an employer for one employee in any benefit year. The result obtained by the division is called the employer's "merit rating index." Rates are assigned by arraying an employer's taxable payrolls according to the merit rating index and dividing such array into 13 parts. Such rates are then assigned to each part; the scale varies from .5 per cent to 2.7 per cent.

An Illustration

I have made no attempt to explain in detail the experience or merit rating provision of any one particular plan but have merely touched on the high lights of the four general types of plans. This has been done with one thought in mind, that being to stimulate interest in considering avenues that may be open to employers for controlling the unemployment tax element of cost.

From the standpoint of direct money savings, effort put forth to secure and maintain favorable experience ratings pays off in dollars and cents. The following example will show how important this problem may be:

> "A" company in a particular state may have an annual payroll of $1,000,000, and without having the advantage of a merit rating under that state's unemployment compensation law, it would pay annually $27,000 into that state's unemployment fund in the form of taxes.
>
> "B," a competitor in the same state with approximately the same annual payroll, has over the past years studied its employment and separation policies from the point of view of keeping at a minimum the payment of unemployment benefits to former employees and as a result has obtained a favorable merit rating under the state's unemployment compensation law of .1 per cent. Therefore, he will pay annually into the state's fund only $1,000, or $26,000 less than his competitor "A." Considering other factors to be equal, this amount is nothing more or less than additional profit, or from the cost accountant's standpoint, lower unit cost of operation.

Payroll Taxes as Incentive to Stabilized Employment

As indicated in the introductory paragraph of this paper, the purpose of unemployment insurance is to provide an income for involuntarily unemployed workers during their period of unemployment, and in order to provide the funds for paying this income contributions are made by employers. It accordingly follows, the smaller the income it is necessary to provide for unemployed workers, the smaller the tax burden will be on employers. Therefore, it may be said that one of the purposes of unemployment insurance is to encourage employers to stabilize employment. The incentive to stabilization in the form of tax reduction is offered to employers because it is recognized that a certain amount of irregularity in unemployment can be prevented.

Administrative Problems

Although the unemployment compensation laws of the various states may entice employers to adopt a program of stabilization

of employment for the purpose of securing reduced rates of tax, the plans in effect offer another opportunity which is mutually advantageous to the individual employers and to the state fund. This additional opportunity is the taking advantage of every method allowed by the law to see that benefit payments are only made to eligible unemployed workers. In discussing the various merit rating plans, it will be remembered that the amount of benefit payments to an employer's former employees is a factor in the experience rating computation. A study of the eligibility requirements for benefits under the various state laws is first necessary, and then it follows that an internal procedure must be put in operation for the purpose of determining that only eligible former employees receive benefits. This, of course, means that it will be necessary to cooperate with the state's administrative agency in presenting facts that would disqualify ineligible workers from receiving benefits.

Also, by studying the phases of each state's law, other points may be brought to light which if followed through will produce a lower contribution rate. For example, in Alabama the full amount of a worker's benefit wages is charged to his former employers when such worker receives his second benefit check, and from then on it makes no particular difference to the employer whether such worker receives only the two or 20 such benefit checks; the damage has been done when the claimant received his second check. The employer's job should be to see that former employees eligible to receive benefits do not receive their second benefit check. In other states where the amount of benefits paid to former employees are chargeable to an employer's account, it is of importance to that employer to see that former employees are taken off of benefits just as soon as possible.

The Alabama law provides for benefit wage charges to employers on former employees who were employed during their base period by such employers. The base period is the first four of the last five quarters immediately preceding the filing of the benefit claim; therefore, when an employer might be forced to reduce his average payroll, he should take into consideration the advisability of separating first those workers who had the lower base period earnings, that is, employees who did not work for the employer during all of their base period.

Voluntary Employer Contributions

It might also be of interest to note that some states allow voluntary employer contributions. Such voluntary contributions are in addition to the required rates. Under the laws of the states allowing such voluntary contributions, the payment of a small amount might increase the contributions factor of an employer's experience formula to the extent of influencing the taxable rate that will be paid on the following year's taxable payroll. For example, a voluntary contribution of $100 in the current year might be all that would be necessary to decrease an employer's unemployment tax rate for the following year from 2.7 per cent to 1 per cent and, assuming that the average annual payroll amounted to $1,000,000, the actual saving by making the $100 contribution would be $16,900.

The above are only a few of the avenues that may be open to an employer, and in closing this paper, may I say that, first, my purpose was to bring to the attention of readers that material dollar and cent savings may be brought about by really analyzing the actual extent of such savings from reduced rates of unemployment tax and, second, my purpose was to stimulate a desire to study the merit rating provisions of the particular state that might be of interest to the reader with the thought that such study will undoubtedly bring to light avenues that may be open to control this variable item of expense.

WORK SIMPLIFICATION— A CASE STUDY OF VOUCHERS PAYABLE

By James D. Anderson,
Chicago Flexible Shaft Company, Chicago, Ill.

THE question is frequently asked, "How can you close your voucher record in sufficient time to permit the preparation of your financial statements by the tenth of the month?" An answer given recently was to the effect, "We do not wait until the end of the month to close. We cut off at the twenty-fifth." What the speaker meant was that in his company all invoices for materials and supplies received after the twenty-fifth of the month are not entered in the month in which they apply, but are entered in the following month's record. The present case study of vouchers payable is presented in this article for two important reasons: first, it is an illustration of what can be accomplished through a work simplification study, and the helpful suggestions of fellow workers; and second, the study illustrates the development of an easy method for recording and paying purchase invoices.

The Work Simplification Study

For a number of years industry, through its engineers, scientists, time study men, and methods men, has spent a great deal of money experimenting and developing ways and means for manufacturing better and cheaper goods. Only recently has management recognized that the same principles of work simplification, standardization, and specialization, as applied to the manufacturing process, can also be applied to the vast amount of paper work necessary in the modern factory. The work simplification program in our company follows the pattern of a combination of job analysis, motion study, standardization, and consolidation of similar duties and records. The vouchers payable study began with the physical handling of the invoices from the time that they are received in the mail until they are approved, recorded, paid, and filed.

Rubber Stamps Placed on Invoices

First, a review was made of the number of rubber stamps placed on the invoices. Placing stamps on invoices not only takes time, but its staccato BOOM BOOM also creates a nerve-racking dis-

turbance throughout the office. The review brought out that ten stamps were placed on each invoice. The stamps were used to indicate date received, receipt of materials, approval, etc. Our company receives approximately 3,000 invoices during each four-week period. Translating the ten stamping operations into units of work meant that 30,000 operations were being performed every period on purchase invoices, or a total of 390,000 for the year.

Five of the ten stamps were employed to indicate the date invoices were received and passed by the three departments handling them. They were used so that responsibility could be placed for delayed invoices and lost cash discount. Investigation revealed that invoices were passed promptly, and little or no discount was lost. It was decided, therefore, to discontinue the five date stamps. This step saved 15,000 operations each period or 195,000 stampings during the year. Eight months have passed and not more than $100 in discounts have been lost. All remaining stamps were consolidated into one stamp. Exhibit one is an enlarged specimen of the small 1⅞" by 2½" stamp that is now placed on the invoices when they are received.

<table>
<tr><td colspan="2">INVOICE RECEIVED
Feb. 10, 1946</td><td>MATERIAL REC'D.
Feb. 12, 1946</td></tr>
<tr><td colspan="2">CALCULATIONS
C.F.S.</td><td>CHECKED TO P.O.
J.D.A.</td></tr>
<tr><td colspan="2">TRANSP.
CHARGES
APPROVED</td><td>DEPT. APPROVAL</td></tr>
<tr><td colspan="3">PASSED FOR PAYMENT
Feb. 12, 1946 H. W.</td></tr>
<tr><td colspan="2">PART NUMBER
13425</td><td>POSTED COST REC'D,
M.C.</td></tr>
<tr><td>DEPT.NO.</td><td>ACCOUNT NO.
14.1</td><td></td></tr>
</table>

EXHIBIT 1

The invoice received date is part of the stamp so that no extra operation is involved in showing that date. The date that material is received and the date that the invoice is passed for payment are stamped in the appropriate places shown in figure one. Initials of employees indicate the work done. Final approval for payment is noted by the initials of the purchasing agent or his assistant in the "passed for payment" space. The initials had always been written on the invoices, so that those functions do not create an extra task. Transportation charges, if any, are approved by the traffic manager. Invoices for special items, such as a tool or a piece of equipment, require the approval of the department supervisor that requisitioned the equipment.

To sum up, five "in and out" date stamps were eliminated and two others were consolidated and made a part of one stamp—the "invoice received date" and "posted to cost record" stamps. Seven complete stamping operations on each invoice were eliminated. Thus it was possible to save 21,000 operations for the period or 273,000 for the year.

Flow of Purchase Invoices

For the next step in our simplification program, a study was made of the flow of purchase invoices through the respective departments. This was accomplished by the preparation of flow charts. The original procedure was charted first. Then proposed procedures were charted and submitted to the executives for their approvals. With the cooperation of the executives, invoices were rerouted through the departments. This change in routing saved two handlings of each invoice. Again translating that time into units of work meant the saving of 6,000 operations during each period, or 78,000 for the year.

The procedure for routing invoices that was adopted is shown in the flow chart in Exhibit 2. It has been effective, for practically all invoices are handled, approved, and given to the accounts payable clerk for payment within two days after receipt of materials. Where it is necessary, invoices are passed and paid on the same day that the materials are received.

Recording and Paying Purchase Invoices

The most important step in the simplification program was the elimination of the vouchers payable record. Our treasurer sug-

FLOW CHART - PURCHASE INVOICES
PURCHASING DEPARTMENT FUNCTIONS
MAIL DESK
INVOICE MATCHER
(1) Matches with receiving ticket
(2) Checks to purchase order
(3) Distributes invoices
CHECKER calculations verified
STENOGRAPHER debit memos
TRACER traces materials not received
PLANT SUPT. approv. for tools, jigs, fixtures, etc.
GEN'L. PLANT MGR. approves for machinery purch.
OTHER DEPTS. see note below
PURCHASING AGENT approves for payment
ACCOUNTING DEPARTMENT FUNCTIONS
COST ACCOUNTANT receives all invoices for account distribution and examination for necessary approvals
ACCOUNTS PAYABLE CLERK enters, pays and files invoices
CHECK SIGNERS two signatures
PRODUCTION DEPARTMENT FUNCTIONS
STORES RECORD CLERK receives material invoices and posts them to stores cards
NOTE: Invoices for special items are given to the departments ordering them for approval.

EXHIBIT 2

gested the consolidation of the vouchers payable with the cash disbursements record. Through the adoption of this plan, the accounting department now prepares an accurate summary of purchases ready for posting to the books of account within three days after the close of the period.

Before the plan is explained, let us consider some of the facts that prompted the consolidation of the two records. First, a tally of the invoices showed that approximately two-thirds were for raw material purchased and were chargeable to one raw material account in the general ledger. Second, ninety per cent of all invoices had only one account distribution. The remaining ten per cent applied to not more than two or three accounts. Third, the majority of the invoices were ten-day bills and had to be paid promptly. Fourth, if we held our vouchers payable record open long enough to record every invoice that applied to a period, at least a week or ten days would have elapsed, and the invoices that were listed as accounts payable in the balance sheet would have been paid and filed before we could complete that statement. Fifth, that while the company has several bank accounts, all expenses and invoices are paid through one account.

The first step was the redesigning of the remittance portion of the voucher checks to provide space for account numbers. Exhibit 3 is submitted as an example. Those companies that are on a standard cost basis and record material variations at the time of

DATE OF INVOICE	ACCT. NO.	DEBIT	ACCT. NO.	CREDIT
Discount			34.3	7.80
2/10	14.1	100.00		
2/11	14.1	300.00		
Our debit memo				
No. 1426 - 2/12			14.1	10.00

(The word discount and its account number are printed on the statement.)

EXHIBIT 3

purchase, can add an additional column to the remittance statement to provide for the entering of the standard cost. This column can extend beyond the body of the original copy of the voucher check so that the standards will not be revealed to the source of supply.

Four copies of the voucher check are made. The original copy is mailed to the supplier; the second is filed in a binder by check number order for the bank reconciliation; the third is placed in an alphabetical file by creditors for reference; and the fourth copy is used for the posting medium and summary of disbursements by account numbers.

The Simplified Plan

Approved invoices received by the accounts payable clerk are placed in a tub file in due date order, followed by alphabetical arrangement. When they are due for payment, the clerk removes them from the file and obtains a grand total of all those that are to be paid. Discounts earned are, of course, computed and the clerk then begins to write the voucher checks on the electric typewriter. Invoices are listed by dates and account numbers as shown in Exhibit 3. When all payments for the day are made, the fourth copy of the checks is given by the accounts payable clerk to the bookkeeper. The bookkeeper obtains a daily total of the amounts of the checks issued, invoices paid, and credits applied, including cash discount. The total of the invoices less the credits and cash discounts must agree with the total of the checks issued. Likewise, the total of the invoices less the credits applied must agree with the original grand total of the amount to be paid, as prepared by the accounts payable clerk. In that manner we prove the correctness of the checks issued. The daily totals, referred to above, are entered in the cash disbursements summary as shown in Exhibit 4.

Approximately six to seven hundred checks are issued each week. They include not only those for the payment of purchase invoices, but also disbursements for payrolls, taxes, and other expense items. All checks are entered in the summary of cash disbursements shown in Exhibit 4. For checks issued and recorded and subsequently cancelled, "dummy" fourth copies of the original checks are made out in red pencil. They are then deducted

CASH DISBURSEMENTS SUMMARY
For 1st Period Ending January 27, 1946

DATE	CHECK NOS.		DEBITS	CREDITS	DISCOUNT	AMOUNT of CHECKS
	FROM	TO				
12/31/45	31006	31256	45,000.00	300.00	800.00	43,900.00
1/2/46	31257	31375	52,000.00	100.00	1000.00	50,900.00
1/3	etc.					
1/4						
1/5						
WEEKLY TOTAL			200,000.00	1000.00	1900.00	197,100.00
PERIOD TOTAL			700,000.00	5000.00	6000.00	689,000.00

(The actual size of the form is 5" x 8½".)

EXHIBIT 4

from the total of the checks issued for the day on which the cancellation took place. The numbers and amounts of the cancelled checks are listed on the back of Exhibit 4.

Each Monday, and this practice is insisted upon, all fourth copies of checks issued during the previous week are sorted by account numbers by the accounts payable clerk. Discount is not considered as an account, as we have already obtained that total in Exhibit 4. Where there are two or more account distributions for one check, the original fourth copy is used for the first account number, and "dummy" copies of the checks are made for the additional distributions. This applies to approximately ten per cent of the checks; usually only one additional fourth copy of each is necessary. After the fourth copies are sorted by account numbers, the clerk then proceeds to obtain the total of the respective amounts applicable to each account. The totals are then entered in the detailed cash disbursements records, as shown in Exhibit 5. Our account numbers are printed on Exhibit 5, and they cover several pages. Credits are entered on a separate set of sheets. The totals of the debits entered in Exhibit 5 must agree with the weekly total of the debits entered in the daily summary, Exhibit 4. Likewise, the total of the credits by account numbers must agree with the total credits in Exhibit 4. This task of summarizing weekly dis-

bursements by account numbers is usually completed within two to three hours.

At the end of the period, the four weekly totals by account numbers are added across to obtain the totals for the period. The grand total of all debits and credits must balance with the respective grand totals as shown in Exhibit 4. This task is completed and the cash disbursements are ready for posting to the books on the first Monday immediately following the close of each period.

To obtain the total of accounts payable at the end of the period, all that we have to do is to wait two or three days for the unpaid invoices to reach the accounts payable clerk. Then we merely sort the invoices and obtain totals of them by account distribution numbers on an adding machine. The accruals are then entered on a journal voucher by account numbers. Thus we have our accounts payable ready for posting to the general books by the third day following the close of a period. The journal entry is reversed in the next period to offset the charges from the cash disbursements when the invoices are paid. After the closing work has been completed, the summary sheets, Exhibits 4 and 5, and the fourth copies of the checks are placed in two binders, indexed by account numbers, and filed by periods for permanent reference.

CASH DISBURSEMENTS
For 1st Period Ending January 27, 1946

DEBITS

ACCT. NO.	W.E. 1/6/46	W.E. 1/13/46	W.E. 1/20/46	W.E. 1/27/46	TOTAL
1.5	1,000.00	2,000.00	1,000.00	1,000.00	5,000.00
1.30	100.00	50.00	100.00	250.00	500.00
1.34	---	5,000.00	1,000.00	---	6,000.00
2.	300.00	---	200.00	200.00	700.00
etc.					
PERIOD TOTAL	200,000.00	150,000.00	250,000.00	100,000.00	700,000.00

(The actual size of the form is 5" x 8½".)

EXHIBIT 5

Conclusion

The advantages that are to be gained by adopting the foregoing method of recording purchases invoices are worth while. They may be summarized as follows:

1. The method provides an expedient and accurate way of closing the books promptly at the end of each period.
2. There is no detailed accounts payable trial balance to be taken and reconciled with the control account.
3. Only one medium is used for posting to the general books of account. Where the bookkeeper formerly posted from both the voucher record and the cash disbursements, she now posts only from the cash disbursements record. Then too, the small 5" x 8½" sheet is a handy posting medium.
4. One complete handling of the invoices is done away with by the elimination of the vouchers payable record. In our own case, it meant the saving of the time that it took to enter in that record dates, names of vendors, and amounts for at least 3,000 invoices a period, as well as the summarizing and balancing of that record.

OUR OPEN FORUM

Accruing Federal Tax Liability

Editor, N. A. C. A. Bulletin:

Many corporate financial officers whose companies operate on a fiscal year basis are in a quandary as to the proper method of accruing the current federal income and excess profits tax liabilities for published interim financial statement purposes. The recommendations of the tax consultants, public accountants, and other advisers are in conflict. Some of them recommend that the tax liability be accrued on the actual and legal basis, that is, at the 1945 rates for the months of operation in 1945 and the 1946 rates for the months in 1946. Others advocate using an average rate for each month in the fiscal year.

Some of the officers and accountants object to the first-mentioned method claiming that the earnings after taxes, publicly reported in 1946, would be considerably more than those for quarterly periods in 1945 even if the profits before taxes were equivalent. This condition is due solely to the change in income tax rates and the elimination of federal excess profits taxes for 1946. Therefore the proposal is made to estimate the effective

average rate of the total federal tax liabilities for the fiscal year and apply this to the company's quarterly earnings for tax purposes to determine each interim period accrual.

There is much to recommend the latter method as far as public interim reports are concerned. Disproportionate increases in earnings frequently arouse undue optimism on the part of stockholders not warranted by actual conditions. Labor leaders would be quick to seize upon such showing of unusually large earnings as evidence of ability to pay without reference to other information. On the other hand, the use of the "average" method is not in accord with facts and is therefore subject to criticism on this score alone. In addition, there are the dangers inherent in any such forecast.

Another aspect of the matter is the effect of reports of large increases in earnings on the minds of the stock-buying public. Ideas of undue optimism generated by reports of greater profits can further feed the fires of inflation. Persons interested in comparing various companies' earnings cannot but be misled if the federal tax liabilities are not accrued on comparable bases which would be the situation if some companies use the "average" method and others accrue on an actual basis.

GEORGE A. BRICAULT,
New York Chapter.

WAGE INCREASES

Editor, N. A. C. A. Bulletin:

Postwar management-labor relations have developed some new characteristics, and consequently have created some new problems. In some respects the new characteristics are in the line of progress toward better labor relations. But in one detail there is a change from former procedures that is decidedly bad, in the opinion of the writer. The results are troublesome, confusing, and unfair to both management and labor.

Labor started out with a demand for a wage increase of 30 per cent. Leaving out of consideration the justice of the rate of increase demanded, it can be stated safely that the formula used in making the demand was correct, namely, it was on a percentage basis. But as the agitation progressed, the talk changed from a 30 per cent increase to a 30 cents an hour increase. Then the federal administration stepped into the controversy with its "Fact Finding Board," which in due time gave its decision that the increase should be 18½ cents an hour. Since that announcement was made all discussion concerning wage changes has been on the basis of a rate per hour, and the percentage basis seems to have been abandoned altogether. All setlements seem to be made now on a rate per hour basis.

The writer is amazed that no one has yet made vigorous objection to this change of formula. If all workers were to receive the same rate per hour, it might be practicable to use an increase expressed as a rate per hour. But when a rate change is to be plant- or industry-wide, with people working at different rates per hour, it is absurd and unfair to everyone concerned to use a single rate per hour. For example, suppose the increase

is 18 cents an hour, and that the present pay rates for two classes of workers are 54 cents and $1.00 per hour. The 54-cent man gets a raise of 33⅓ per cent; the $1.00 man gets an 18 per cent increase. To be sure, it may be true that the 54 cent man was underpaid (relatively) and the $1.00 man was already overpaid, and it may have been fair to give the first man a larger rate of increase than the second. But to consider the example as such would make it an individual case and would disqualify it from consideration in our present line of thought, which is that the change sought is not a revision of relative rates of pay but is, or should be, a change at a single percentage rate for all employees, thus leaving the class relative rates of pay in the same ratio as before.

The problem is at its worst for both management and labor when, in one payroll, there are hourly rates, piece rates, and bonus incentive systems. At a recent study group meeting of the Providence Chapter, the leader asked if other members of the group had had trouble similar to his own in computing the increases on the different wage rates and satisfying the unions that the changes in each case were in accordance with the terms of a new labor contract, which had specified an increase at a single rate per hour. Each member who spoke reported having had difficulties, and all seemed to feel they will have many arguments over individual changes. Each bewailed the great labor involved in the many and intricate calculations he was compelled to make. Evidently some tried to convert a rate per hour to a percentage.

Controversies over wage rates are so costly to both management and labor that every effort should be made to clarify the terms of negotiations and of a contract so completely that there is no chance for later misunderstanding and continued friction. It seems to the writer that everyone has gone astray in this matter and that an effort should be made to get back on the right track by making all negotiations and agreements hereafter on a percentage basis and not on a per hour basis. But, while the writer has expressed his opinions thus vigorously, he still wonders if he has the whole story, so he is submitting the case to the Open Forum, in the hope that letters from other members of the Association may either confirm what is here written or may supply additional facts which will clarify the situation as it now appears to many people. The subject is certainly appropriate for discussion by the Association, and if correction of methods appears finally desirable, the Association can certainly be effective in bringing it about.

LOUIS C. CHASE,
Providence Chapter.

REDUCTION OF COSTS THROUGH EMPLOYEE BENEFIT PLANNING

Editor, N. A. C. A. Bulletin:

The article "Reduction of Costs Through Employee Benefit Planning" by Gustave Simons in the January 15, 1946, issue of the *Bulletin* makes admirably clear the point that the adoption of an old-age benefit plan is

an economical undertaking. From the standpoint of replacement of "depreciated" personnel alone, employee benefit plans are a valuable part of a company's long-range cost analyses.

Several questions come up in a discussion of the relative merits of pension plans, profit-sharing plans, or a combination of both, which are perplexing if one is faced with making a choice. The profit-sharing plan seems to offer the easy way out since it requires no definite future commitments beyond a system of distributing profits as they are earned, but the disadvantages with respect to the equitable treatment of employees are obvious. The pure pension plan invites either too optimistic an outlook as to future earnings, thereby endangering the plan in its later years if contributions cannot be met, or too pessimistic a forecast, in which event the plan becomes inadequate. The combination plan has its problems in the determination of what will constitute a fair base plan, whether it will include a death benefit only or some retirement income feature, and exactly how the profit-sharing fund will be administered.

In the early days of the rush to employee benefit plans, life insurance salesmen made a great play for the business, emphasizing the pure pension plan consisting entirely of life insurance contracts, either annuities or combination life and annuity policies. This was an understandable endeavor on their part although it is now recognized that such plans did not hold all the answers. Of late, there is a decided modification in such sales procedures and anyone contemplating the adoption of a plan would do well to look into the practices of several insurance companies. It will be found that various systems are employed to fit the plan to a particular problem and that combination pension and profit-sharing plans have been worked out by the insurance companies themselves. The trend today, among the insurance specialists in this field, is away from the emphasis of tax advantages—which may not have been true in the past—and towards future soundness and continuation.

When investigating the adoption of a plan involving an insurance company it is advisable not to place too much stress upon so-called "stop and go" provisions. While these seem to offer a solution to the problem of barren years in that they permit the insured plan to ride along without its usual yearly deposit or with a modified contribution, so far as the writer is aware they have never been tested. It may be that they would be interpreted by the Treasury Department as an abandonment of the plan and liability declared for taxes on past exempted sums.

It is no understatement to declare that the adoption of an employee benefit plan requires a sound knowledge of a concern's background, its history of profits, and its future possibilities. The cost accountant is in his particular sphere in supplying this knowledge and can add much to the executive judgment as to the type of plan to go into and the long-term commitments to be made.

CATHERINE SPIRITO,
Providence Chapter.

CHAPTER RATINGS

For Eleven Months Ending April 30, 1946

	Membership First of Month	Applications, Reinstatements, and Transfers	Member Attendance	Publications	Publicity	News Letters	Program	Employment	Board Meetings	Meeting Notices and Reports	Bulk Mailing	Financial Budget and Reports	Special Activities	Total
1. Providence	308	1125	1473	450	243	220	200	50	540	150	50	100	485	5086
2. Birmingham	169	1125	1456	530	228	220	200	50	540	160	50	100	360	5027
3. New Hampshire	103	1089	1370	226	222	220	200	43	540	160	50	100	490	4710
4. Dallas	133	1125	1072	408	160	220	200	50	506	160	50	100	500	4551
5. Hampton Roads	106	1125	977	308	226	220	200	46	510	152	50	100	440	4354
6. Scranton	109	1118	1016	351	191	220	200	49	510	160	50	100	340	4305
7. Atlanta	190	1125	818	324	214	220	200	47	536	160	50	100	495	4289
8. Toledo	198	1034	801	386	235	220	200	50	540	160	50	100	500	4276
9. Boston	743	997	858	385	216	220	200	50	540	160	50	100	500	4276
10. Newark	466	1025	915	405	232	220	200	50	510	152	50	100	410	4269
11. Philadelphia	598	1066	853	405	246	220	200	50	510	150	50	100	415	4265
12. Des Moines	90	1068	1126	308	68	180	200	49	540	160	50	100	395	4244
13. Los Angeles	358	1035	881	535	184	220	200	50	510	152	50	100	320	4237
14. Jamestown	93	1084	850	293	217	220	200	50	510	160	50	100	500	4234
15. St. Louis	329	629	1078	450	250	220	200	50	539	160	50	100	495	4221
16. Chicago	784	950	853	405	230	220	200	49	539	160	50	100	460	4216
17. Cleveland	482	680	1132	370	187	220	200	50	539	160	50	100	480	4168
18. Utica	103	1029	1008	303	228	220	200	42	494	147	50	100	305	4126
19. Lehigh Valley	99	982	832	288	250	220	200	46	508	150	40	100	500	4116
20. Dayton	389	817	802	400	255	200	200	50	540	160	50	100	475	4049
21. Rochester	307	789	909	335	246	220	200	48	510	160	50	100	480	4047
22. Worcester	158	745	865	420	231	215	200	50	510	160	50	100	500	4046
23. Erie	134	954	758	330	210	220	200	50	510	160	40	100	500	4032
24. Memphis	100	1121	970	220	114	200	200	49	524	150	50	100	305	4003
25. Milwaukee	414	890	793	370	151	220	200	50	538	160	50	100	475	3997
26. Evansville	66	1125	1043	203	140	200	200	27	491	152	30	50	335	3996
27. Minneapolis	212	1027	1084	156	142	220	200	44	480	160	50	100	324	3988
28. Houston	253	1017	735	340	235	215	200	49	540	143	50	100	360	3984
29. Peoria	275	879	727	360	251	220	200	49	480	160	50	100	500	3976
30. Baltimore	255	1025	741	335	194	220	200	50	540	160	50	100	350	3965
31. Columbus	194	1060	690	418	177	220	200	47	532	155	50	100	303	3952
32. Brooklyn	303	986	799	325	242	220	200	48	507	160	50	100	305	3942
33. Indianapolis	343	988	770	340	135	220	200	50	540	152	50	100	380	3925
34. Williamsport	140	1084	728	216	225	220	200	49	508	155	50	100	385	3920
35. Springfield	234	700	833	352	235	220	200	50	536	160	50	100	470	3906
36. New Orleans	172	1075	978	330	205	220	200	50	473	150	40	100	80	3901
37. South Bend	117	1031	908	294	156	220	200	47	480	152	40	100	265	3893
38. Akron	181	959	662	350	121	180	200	49	538	155	50	100	500	3864
39. Fort Wayne	204	989	756	318	186	200	200	50	538	148	50	100	290	3825
40. Hartford	364	854	910	375	255	220	200	50	480	160	50	100	170	3824
41. Tri-Cities	181	754	747	342	240	220	200	49	540	160	50	100	420	3822
42. Bridgeport	261	700	757	380	247	220	200	50	519	160	50	100	435	3818
43. New York	1567	964	839	415	192	220	200	50	510	160	50	100	80	3780
44. Grand Rapids	138	1049	893	94	93	220	200	50	473	160	40	100	395	3767
45. Denver	150	609	860	272	194	220	200	50	540	160	50	100	460	3715

	Membership First o. Month	Applications, Reinstatements, and Transfers	Member Attendance	Publications	Publicity	News Letters	Program	Employment	Board Meetings	Meeting Notices and Reports	Bulk Mailing	Financial Budget and Reports	Special Activities	Total
46. New Haven.....	182	1012	891	312	204	180	200	50	510	160	40	100	50	3709
47. Hagerstown	75	642	797	293	196	220	200	50	502	152	50	100	500	3702
48. Decatur	123	992	636	336	135	220	200	41	482	160	50	100	305	3657
49. Main (State of)...	90	1033	786	218	211	200	200	24	497	160	50	100	170	3649
50. Detroit	823	559	822	415	177	220	200	50	510	160	50	100	380	3643
51. Nashville	65	700	1069	390	114	120	200	49	536	103	30	100	225	3636
52. Lancaster	195	553	797	318	211	200	200	50	510	160	50	100	485	3634
53. San Francisco.....	297	700	764	360	193	220	200	50	536	160	50	100	290	3623
54. Syracuse	221	995	784	150	159	160	200	42	533	160	50	100	280	3613
55. Chattahoochee	71	1086	1308	195	156	120	200	34	235	125	50	25	..	3534
56. Muskegon	50	1089	1059	..	97	100	200	34	495	64	50	100	230	3518
57. Wabash Valley....	55	992	712	300	106	220	200	29	510	152	50	100	120	3491
58. Kansas City.....	274	692	740	260	196	220	200	49	538	160	40	100	295	3490
59. Richmond	118	1042	1152	218	63	120	200	10	364	130	40	100	40	3479
60. Saginaw Valley....	91	967	810	218	178	180	200	48	454	160	50	100	90	3455
61. Buffalo	319	640	687	395	227	220	200	49	510	160	50	100	200	3438
62. Reading	103	577	727	312	196	180	200	48	540	160	40	100	340	3420
63. Greenwich	91	771	779	195	204	220	200	50	535	160	40	100	150	3404
64. Calumet	76	1025	770	..	92	220	200	44	508	160	50	100	230	3399
65. Washington	215	1073	785	100	159	220	200	34	476	148	50	100	20	3365
66. Rockford	199	555	932	210	64	160	200	50	482	160	40	100	400	3353
67. Albany	107	867	787	188	191	220	200	25	508	160	50	75	75	3346
68. Youngstown	174	815	551	390	216	220	175	50	478	135	50	100	150	3330
69. Pittsburgh	479	619	728	345	213	180	200	50	529	160	50	100	100	3274
70. Cincinnati	201	666	756	162	121	160	200	50	493	160	50	100	335	3253
71. York	174	237	701	312	247	200	200	49	535	137	50	100	425	3193
72. Chattanooga	112	577	702	240	137	220	200	48	508	152	50	100	250	3184
73. Wichita	109	406	723	330	124	210	200	45	534	150	50	100	290	3162
74. Harrisburg	72	800	761	..	164	200	200	47	499	160	40	100	160	3131
75. Jackson	92	1075	528	98	130	160	200	45	509	136	50	100	45	3076
76. Tulsa	110	876	786	144	91	75	200	38	500	148	40	100	40	3038
77. Cuba	131	405	565	342	231	220	200	47	540	160	50	100	115	2975
78. Binghamton	84	431	741	293	121	195	200	35	430	144	30	100	215	2935
79. Portland	84	538	760	233	87	120	200	35	525	160	40	95	85	2878
80. Cedar Rapids.....	76	800	722	..	128	160	200	34	522	112	40	50	40	2808
81. Louisville	171	700	738	72	97	..	200	40	210	144	40	95	..	2336
82. Fort Worth	84	825	561	..	84	40	..	20	283	116	10	25	25	1989
83. Hawaii	84	484	..	..	54	160	..	..	185	96	..	50	..	1029
84. Piedmont	60	350	..	..	..	..	..	..	..	..	..	..	..	350